

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 17067-35-1-P	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2007/074984	International filing date (<i>day/month/year</i>) 01 August 2007 (01.08.2007)	Priority date (<i>day/month/year</i>) 02 August 2006 (02.08.2006)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BAXTER INTERNATIONAL INC.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	<p>Date of issuance of this report 17 February 2009 (17.02.2009)</p> <p>Authorized officer</p> <p style="text-align: center; font-size: 1.2em;">Nora Lindner</p> <p>e-mail: pt11.pct@wipo.int</p>
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2007/074984

International filing date (day/month/year)
01.08.2007

Priority date (day/month/year)
02.08.2006

International Patent Classification (IPC) or both national classification and IPC
INV. A61L24/00 A61L24/06 A61L31/04 A61L31/14

Applicant
BAXTER INTERNATIONAL INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Menidjel, Razik

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2007/074984

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2007/074984

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	<u>1-27, 29, 30, 33, 34, 36-44, 72-99, 101, 102</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-102</u>
Industrial applicability (IA)	Yes: Claims	<u>1-102</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and /or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Claims 33-35,45-71,73-77,79,81,82 relate to a subject-matter considered by this Authority to be covered by the provision of Rule 39.1(iv)/67.1(iv) PCT. The patentability can be dependent upon the formulation of the claims. The EPO, for example, does not recognise as patentable claims to the use of a compound in medical treatment, but may allow claims to a product, in particular substances or compositions for use in a first or further medical treatment.

2. The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

✓ D1: US-A-6 166 130 (RHEE WOONZA M [US] ET AL) 26 December 2000 (2000-12-26) cited in the application

D2: WO 2006/031358 A (HYPERBRANCH MEDICAL TECHNOLOGY [US]; GRINSTAFF MARK W [US]; CARNAHAN M) 23 March 2006 (2006-03-23)

3. Novelty (Article 33(2) PCT)

- The subject-matter of present claims 1-27,29,30,33,34,36-44,72-99,101,102 is considered as not novel over the cited prior art for the following reasons (Article 33(2) PCT):

- Document D1 (US6166130), cited by the Applicant, describes a tissue sealant material comprising a porous matrix made of a multi-nucleophilic polyalkylene oxide and a multi-electrophilic polyalkylene oxide, wherein in said porous matrix is comprised a hydrogel-forming component based on collagen (Cf. D1, column 2, line 29-column 3, line 46; column 4, line 31-column 5, line 52; column 6, line 40-column 8, line 5; column 11, line 35-column 13, line 65; column 14, lines 42-56).

The subject-matter of document D1 takes away novelty of present claims 1-27,29,30,33,34,36-44,72-99,101,102.

- Document D2 (WO2006/031358) discloses a tissue sealant material comprising a porous matrix made of dendritic polymers comprising electrophilic and nucleophilic end groups and crosslinked gels based on collagen and able to absorb water in order to become hydrogel (Cf.

D2, page 9, line 5-page 10, line 11; page 11, line 7-page 12, line 16; page 36, line 3-page 37, line 28).

The subject-matter of Document D2 takes away novelty of present claims 1-27,29,30,33,34,36-44,72-99,101,102.

4. Inventive Step (Article 33(1),(3) PCT)

a - Since the subject-matter of claims 1-27,29,30,33,34,36-44,72-99,101,102 is known, obviously it can not be considered as inventive according to Article 33(1),(3) PCT.

b - Although novel, the remaining subject-matter, which is the subject-matter of present claims 28,31,32,35,45-71,100 can not be considered as inventive according to Article 33(1),(3) PCT for the following reasons:

- Document D1 (US6166130), cited by the Applicant and which is considered as the closest prior art, describes a tissue sealant material comprising a porous matrix made of a multi-nucleophilic polyalkylene oxide and a multi-electrophilic polyalkylene oxide, wherein in said porous matrix is comprised a hydrogel-forming component based on collagen (Cf. D1, column 2, line 29-column 3, line 46; column 4, line 31-column 5, line 52; column 6, line 40-column 8, line 5; column 11, line 35-column 13, line 65; column 14, lines 42-56).

b1 - The difference between the subject-matter of claims 28,45,47,53 and the teaching of the closest prior art, is the choice of the hydrogel, wherein the hydrogel comprises subunits having sizes ranging from about 0.01 mm to about 5 mm when fully hydrated and has an equilibrium swell ranging from about 400% to about 5000%.

- The technical effect of this difference is in fact the capacity of the claimed hydrogel to absorb water, technical effect achieved by most of the hydrogel. This effect might be also achieved by the hydrogel described in document D1 although not explicitly mentioned.

- Therefore, in the absence of an unexpected or surprising effect linked to this difference, the objective technical problem may be formulated as the provision of an alternative hydrogel composition.

- Hence, this feature is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

b2 - The difference between the subject-matter of claims 31,32,35,52,100 and the teaching of the closest prior art is the presence of a clotting agent selected from thrombin.

- The technical effect of this difference is the obtention of a sealant material having clotting properties.

- The objective technical problem may be formulated in view of D1 as the provision of an alternative sealant material.

- This feature is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

b3 - Dependent claims 46,48-51,54-71 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, since these claims refer to subject-matter already described in document D1 but for which the dependency on claims 28,45,47,53 and more specifically on the choice of the hydrogel, wherein the hydrogel comprises subunits having sizes ranging from about 0.01 mm to about 5 mm when fully hydrated and has an equilibrium swell ranging from about 400% to about 5000% made said subject-matter novel.

5. Industrial Application (Article 33(4) PCT)

- The subject-matter of present claims 1-102 is considered to be industrially applicable; claims 1-102 therefore, satisfy the criterion set forth in Article 33(4) PCT.

Re Item VI

Certain documents cited

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2007/074984

Certain published documents

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO2006/118460	09.11.2006	03.05.2006	04.05.2005 11.05.2005
WO2007/001926	04.01.2007	19.06.2006	24.06.2005

Although document D3 (WO2006/118460) and D4 (WO2007/001926) do not constitute prior art within the meaning of Rule 64.1(b) PCT, they appear to be particularly relevant in regard to the subject-matter of claims 1-27,29,30,33,34,36-44,72-99,101,102.

Re Item VIII

Certain observations on the international application

a - Claims 28,45,47,49 and 53 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claims attempt to define the subject-matter in terms of the result to be achieved, namely "...wherein the hydrogel comprises subunits having sizes ranging from about 0.01 mm to about 5 mm when fully hydrated and has an equilibrium swell ranging from about 400% to about 5000%" which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

b - Claim 36 comprises all the features of claim 1 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

c - Claim 37 comprises all the features of claim 1 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

d - Claim 38 comprises all the features of claim 1 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

**WRITTEN OPINION OF THE
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AUTHORITY (SEPARATE SHEET)**

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e - Claim 39 comprises all the features of claim 1 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

f - Claim 102 comprises all the features of claim 85 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

g - Claim 101 comprises all the features of claim 96 and is therefore not appropriately formulated as a claim dependent on the latter (Rule 6.4 PCT).

h - Present claims 78,79,81 and 82 refers to independent claim 72 and to "the first tissue surface": claim 72 does not refer to a first tissue surface which leaves the reader in doubt to the technical features of claims 78,79,81 and 82.

i - Present claim 98 refers to "written instructions for applying the mixed powder": such claim is to be interpreted as information and no technical features.